OREGON COASTAL NONPOINT PROGRAM
NOAA/EPA PROPOSED FINDING

C. ADDITIONAL MANAGEMENT MEASURES - FORESTRY

PURPOSE OF MANAGEMENT MEASURE: The purpose of this management measures is to identify additional management measures necessary to achieve and maintain applicable water quality standards and protect designated uses for land uses where the 6217(g) management measures are already being implemented under existing nonpoint source programs but water quality is still impaired due to identified nonpoint sources.

CONDITION FROM JANUARY 1998 FINDINGS: Within two years, Oregon will finalize its proposal to inspect operating OSDS, as proposed on page 143 of its program submittal. (1998 Findings, Section IV.C).

PROPOSED FINDING: Disapproval

RATIONALE:
Buffers for Herbicide Application on Type N Streams: On December 20, 2013, EPA and NOAA invited public comment on the State's approach to buffers for aerial application of herbicides on Type N (non-fish bearing) streams. In the December 20, 2013 proposed action, the agencies noted Oregon had published forest practice rules that required buffer zones for most pesticide applications. The rules did not, however, contain restrictions for aerial application of herbicides on Type N streams, which the 1998 and 2004 findings noted could leave those streams at risk. Type N streams comprise a significant portion of stream length in the coastal zone. Note that the term "pesticides" refers to insecticides, herbicides, fungicides, and various other substances used to control pests (U.S. EPA website).

Specific to small, non-fish bearing streams, Oregon's coastal nonpoint program relies on the Chemical and Other Petroleum Product Rules (OAR 629-620-0000 through 800), Pesticide Control Law (ORS 634), best management practices set by the ODA, and pesticide label requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). For fungicides and nonbiological insecticides, Oregon requires that no spraying occur within 60 feet of a stream with flowing water at the time of application (OAR 629-620-0400(7)(b)). As noted above, however, the State does not have a buffer zone for aerial applications of pesticides on non-fish bearing streams.

The Agencies received thirty-five comments related to the State's pesticide programs. Several commenters expressed concern on health effects to people and aquatic life from aerial drift of herbicides and the presence of herbicides in blood and urine samples. Others noted that better notification before pesticide application, access to pesticide records, monitoring, and larger buffers were needed. Commenters also supported the State's program stating that the labeling requirements under FIFRA and best management practices required when applying pesticides

were adequate to protect people and aquatic species. Many commenters described studies of pesticide water quality data in the State, all noting that pesticide levels were detected. Some commenters concluded from these studies that pesticide levels were below thresholds of concern, while others concluded that the presence of pesticides showed that State regulations were insufficient to manage pesticides.

Because the State relies in large part on FIFRA labeling requirements on aerial application of herbicides non-fish bearing streams, the following is a brief description of the program. EPA's Pesticide Program performs a comprehensive risk assessment that evaluates risk to workers, homeowners; dietary risk; drinking water risk; and non-target ecological risk. The pesticide risk assessment and registration process result in labeling requirements that vary. Examples of FIFRA label requirements on herbicide application range from prohibitions on aerial application to suggestions on how and where the application occurs (US Environmental Protection Agency, 2012) (U.S. Environmental Protection Agency, 1993).

Ex. 5 - Deliberative

Ex. 5 - Deliberative In coastal, forested areas in Oregon where herbicides are aerially applied in non-fish bearing streams, aerial application are approximately 70 to 80 feet above the crop canopy (citation).

Ex. 5 - Deliberative

Ex. 5 - Deliberative However, in response to several pesticide-related lawsuits related to the adequacy of federal agencies in evaluating the impacts of pesticides on ESA-listed species, EPA, NOAA's National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS), and United States Department of Agriculture (USDA) requested the National of Academy of Sciences (NAS) review existing methods for assessing risks of pesticides to listed species and recommend improvements. On April 30, 2013, the NAS released their report, and the agencies agreed to work jointly to implement the recommendations in a phased, iterative approach over 15 years. As a result, the programs are in the process using modified methods for risk assessment that may affect future labeling requirements and best management practices for herbicide applications that could affect ESA listed species (ESA, (BEST), (DELS), & Council, 2013).

Specific to ESA-related litigation filed in 2001, the Washington Toxics Coalition sued EPA for failing to consult with NMFS under Section 7 of the Endangered Species Act (ESA). On February 5, 2004, a court order went into effect that required EPA to initiate consultation with NMFS. EPA has since initiated consultation with NMFS on 37 pesticide active ingredients. NMFS has issued six final biological opinions (BiOps) for 29 active ingredients as well as a draft of the seventh BiOp for three remaining additional active ingredients. NMFS has not yet, however, issued BiOps for the five remaining active ingredients nor the seventh BiOp. In the BiOps that have been issued, NMFS concluded that some herbicides are likely to jeopardize some listed species. For these herbicides, NMFS included reasonable and prudent alternatives, such as buffers around water bodies (fish and non-fish bearing) during application.

Ex. 5 - Deliberative

Ex. 5 - Deliberative In some cases, NMFS has already determined jeopardy on the impacts of some herbicides to ESA-listed species from herbicides on non-fish bearing streams.

In addition to ongoing work on EPA's pesticide risk assessment, several studies have studied effects from aerial drift of herbicides from forestry applications. In March 2000, ODF's study on aerial pesticide application monitoring in Oregon coastal areas measured trace levels of less than 1 part per billion (ppb) of herbicides in seven of 25 stream sites adjacent to post-spray applications (Dent & Robben, 2000). These levels were well below thresholds of concern established in the study for people, fish, and invertebrates. However, the study also noted that its focus was on water quality protection of streams with riparian buffer requirements, such as fish-bearing and domestic use streams, and did not address small non-fish bearing streams that do not have overstory riparian buffer requirements. In a USGS study in the McKenzie River of the Clackamas Basin, outside the coastal zone management area, 43 out of 175 compounds were detected at least once across 28 sites. The study focused on urban, forestry, and agricultural land uses. Nine pesticides were detected out of 14 samples from the drinking water facility's intake from 2002 to 2010. However, concentrations were low, less than 1 part per billion, and the largest number of pesticide detections were associated with urban stormwater (Kelly et al. 2012).

EPA evaluated non-fish bearing streams in the Highway 36 area in the midcoast of Oregon to look at the potential of herbicide transport downstream to fish-bearing streams. (Peter L and Alan – talk with Friday.)

Conclusions from the ongoing Exposure Investigation (EI) for the Highway 36 Corridor in the mid-coast region of Oregon in the Coastal Zone Management Area show that residents were exposed to herbicides during the investigation period, but it is not possible to confirm whether these exposures resulted from the aerial application of pesticides or from another source. Low levels of herbicides applied during aerial applications were found in 10 soil samples, but no herbicides were found in drinking water samples. EPA will be conducting air monitoring to determine the public health significance from aerial application of herbicides in the Highway 36 Corridor (Oregon Health Authority, Draft Final, 2014).

At the State level, Oregon has taken independent steps to address pesticide water quality issues. Key State agencies, including ODA, ODF, ODEQ, and the Oregon Health Authority, formed a team in 2007 that developed an interagency Water Quality Pesticide Management Plan to guide State-wide and watershed-level actions to protect surface and groundwater from potential impacts of current pesticides. The plan, approved by EPA Region 10 in 2011, focuses on using water monitoring data as the driver for adaptive management actions. The plan includes a continuum of management responses, ranging from voluntary to regulatory actions. Regulatory actions are implemented using existing agency authorities, if the water quality concerns cannot

be addressed through the collaborative team effort. The State's Pesticide Stewardship Partnership (PSP) Program is the primary mechanism for addressing pesticide water quality issues at the watershed level. Through the partnership, the ODEQ works with State and local partners to collect and analyze water samples and use the data to focus technical assistance and best management practices on streams and pesticides that pose a potential aquatic life or human health impact. The federal agencies compliment Oregon for its establishment of a multi-agency management team, development of its Water Quality Pesticide Management Plan, and implementation of its PSP Program. If fully implemented, where needed, across the coastal nonpoint management area, these actions would represent strong management measures for helping the State address key pesticide issues.

EPA's and NOAA's original basis for disapproval was inadequate riparian buffers for aerial application of herbicides on non-fish bearing streams. In addition to non-fish bearing streams comprising a large part of coastal stream length, there are additional opportunities for herbicides to enter streams through runoff since non-fish bearing streams lack buffer requirements. Thus far, limited studies have shown low levels of pesticides below thresholds of concern. However, it is important to note that depending on pesticide label requirements, even detectable levels of pesticides may not be in adherence to FIFRA requirements, depending on the level of restrictions on aerial application of herbicides.

Aerial drift and their effects on aquatic life and people remain a concern. The federal agencies note that water quality monitoring data on pesticides are still limited in the State and that ODEQ has only established eight PSP areas in seven watersheds, none of which are located within the coastal nonpoint management area. While the federal agencies recognize that the PSP program is expanding into two new watersheds, the agencies believe that, if monitoring data are to drive adaptive management, the State should develop and maintain more robust and targeted studies of the effectiveness of its pesticide monitoring and best management practices. These studies should include several sites within the coastal nonpoint management area. The federal agencies also encourage the State to design its monitoring program in consultation with EPA and NMFS so that it generates data that are also useful for EPA pesticide registration reviews and NOAA BiOps.

Finally, while EPA and NMFS work through a new pesticide registration process and litigation and ultimately implement sufficient protections of target waterways to protect people and aquatic life, the federal agencies strongly recommend the State of Oregon consider the following in the State's next Pesticide Management Plan to reduce and minimize impacts of herbicide exposure from aerial applications to people and aquatic life:

- State-specific buffers on non-fish bearing streams for aerial application of herbicides;
- Herbicide application guidelines for buffer and drift control such as reduced droplet size, consideration of terrain and weather conditions, better mapping of spray application area;
- Public notification beyond community water managers prior to spraying;
- Better record keeping and transparency of public records;
- Increased training and guidance for applicators; and

- Increased effectiveness monitoring of pesticides and best management practices.

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Comment [CJ1]: Please add the correct information.

PROPOSED FINDING: Disapproval

RATIONALE:

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~~Oregon's response noted several regulations the State uses to manage its pesticides program.~~ Specific to small, non-fish bearing streams, Oregon's coastal nonpoint program relies on the Chemical and Other Petroleum Product Rules (OAR 629-620-0000 through 800), Pesticide Control Law (ORS 634), best management practices set by the ODA, and pesticide label requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). For fungicides and nonbiological insecticides, Oregon requires that no spraying occur within 60 feet of a stream with flowing water at the time of application (OAR 629-620-0400(7)(b)). As noted above, however, the State does not have a buffer zone for aerial applications of pesticides on non-fish bearing streams.

Comment [CJ2]: Spell out.

Comment [CJ3]: Is this true for all pesticides (insecticides, herbicides, fungicides, and various other substances used to control pests) or just herbicides?

The Agencies received thirty-five comments related to the State's pesticide programs. Several commenters expressed concern on health effects to people and aquatic life from aerial drift of herbicides and the presence of herbicides in blood and urine samples. Others noted that better notification before pesticide application, access to pesticide records, monitoring, and larger

buffers were needed. Commenters also supported the State's program stating that the labeling requirements under FIFRA and best management practices required when applying pesticides were adequate to protect people and aquatic species. Many commenters described studies of pesticide water quality data in the State, all noting that pesticide levels were detected. Some commenters concluded from these studies that pesticide levels were below thresholds of concern, while others concluded that the presence of pesticides showed that State regulations were insufficient to manage pesticides.

Because the State relies in large part on FIFRA labeling requirements ~~for requirements~~ on aerial application of herbicides non-fish bearing streams, the following is a brief description of the program. EPA's Pesticide Program performs a comprehensive risk assessment that evaluates risk to workers, homeowners;~~,~~ dietary risk; ~~and~~ drinking water risk; and non-target ecological risk. The pesticide risk assessment and registration process result in labeling requirements that vary. Examples of FIFRA label requirements on herbicide application range from prohibitions on aerial application to suggestions on how and where the application occurs (US Environmental Protection Agency, 2012) (U.S. Environmental Protection Agency, 1993).

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Comment [CJ4]: Do we want to include a summary of comments received in the rationales or just in the response to comments (and issue paper where appropriate) document? I recall a comment suggesting deleting this kind of information in another rationale.

Comment [CJ5]: What does this mean? I understand ecological risk but not sure what "non-target" means in this context.

Comment [CJ6]: Both or which citation?

Comment [CJ7]: Explain why this is a problem in terms of water quality impacts etc..

Comment [CJ8]: May want to apply directly to Oregon's coasts and note whether there are ESA listed species located on Oregon's coast and that could be impacted by herbicide applications

Comment [CJ9]: Confusing citation

Comment [CJ10]: Are any of these active ingredients for herbicides?

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Comment [CJ11]: Can you include a sentence that describes the relevance of these findings to the basis for our disapproval or how these informs our decision?

Comment [CJ12]: At the end of your descriptions of these studies, can you explain the relevance of these studies to our disapproval decision or how these studies are being used to inform our decision?

Comment [CJ13]: Spell out

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~~It is also important to note an ongoing Exposure Investigation (EI) for the Highway 36 Corridor in the mid-coast region of Oregon in the Coastal Zone Management Area (Oregon Health Authority, Draft Final, 2014). EPA and NOAA received several comments related to aerial application of herbicides in the Highway 36 Corridor.~~ Conclusions from the ongoing Exposure Investigation (EI) for the Highway 36 Corridor in the mid-coast region of Oregon in the Coastal Zone Management Area ~~EI~~ show that residents were exposed to herbicides during the investigation period, but it is not possible to confirm whether these exposures resulted from the aerial application of pesticides or from another source. Low levels of herbicides applied during aerial applications were found in 10 soil samples, but no herbicides were found in drinking water samples. EPA will be conducting air monitoring to determine the public health significance from aerial application of herbicides in the Highway 36 Corridor. ~~-~~(Oregon Health Authority, Draft Final, 2014).

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Finally, while EPA and NMFS work through a new pesticide registration process and litigation and ultimately implement sufficient protections of target waterways to protect people and aquatic life, the federal agencies strongly recommend the State of Oregon consider the following in the

Comment [CJ14]: Does EPA and NOAA need to work through these issues before we can even consider removing our disapproval or can we remove our disapproval if Oregon adopts our recommendations even if these issues have not been worked out?

Comment [CJ15]: Not sure what this "target" means in this context.

State's next Pesticide Management Plan to reduce and minimize impacts of herbicide exposure from aerial applications to people and aquatic life~~. These recommendations include~~:

- State-specific buffers on non-fish bearing streams for aerial application of herbicides;
- Herbicide application guidelines for buffer and drift control such as reduced droplet size, consideration of terrain and weather conditions, better mapping of spray application area;
- Public notification beyond community water managers prior to spraying;
- Better record keeping and transparency of public records;
- Increased training and guidance for applicators; and
- Increased effectiveness monitoring of pesticides and best management practices.

Comment [CJ16]: If Oregon accepts all of our recommendations, will we remove our disapproval? If so, do they need to accept them all or are there key ones that need to be accepted in order to obtain our approval?